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Risk of gestational diabetes mellitus following assisted reproductive technology: systematic review and meta-analysis of 59 cohort studies

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Abstract

Objective: The use of assisted reproductive technology (ART) has been associated with an increased risk of gestational diabetes mellitus (GDM) in previous studies, but its risk has not been consistent. Therefore, we aimed to estimate the risk of GDM in women who conceived with ART via a systematic review and meta-analysis of cohort studies. Methods: ISI Web of Knowledge, Medline/PubMed, Scopus, and Embase databases were searched to identify studies that evaluated the risk of GDM through May 2017 using the relevant keywords. Two reviewers independently performed the screening, data extraction, and quality assessment. Meta-analysis was performed with a random effects model. Results: The search yielded 957 records relating to GDM and use of ART, from which 59 eligible cohorts were selected for meta-analysis (n = 96,785). There was evidence of substantial heterogeneity among these studies ($\chi_{(58)}^2$ = 3072.34, p <.001; I^2=98.1%). The pooled estimate of GDM risk using the random effects model was 9.00% (95% CI: 7.90–10.20). Visual inspection of the funnel plot indicated the presence of low publication bias, but Egger's test did not reveal publication bias. Conclusions: The findings revealed that the risk of GDM was very high among women who conceived with ART treatment. GDM screening, management, and improved care are vital in ART pregnancy.

Keywords: Assisted reproductive technology, gestational diabetes mellitus, meta-analysis, systematic reviews